	Application No.		**Applicant(s)**	
Notice of Allowability	10/719,434		KRISTOFFERSEN, KJELL	
	Examiner		**Art Unit**	
	Jaworski Francis J.		3768	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *Pre-appeal Conference held 6/13/07*.

2. ☒ The allowed claim(s) is/are *1-6,8-17,19 and 20*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some*   c) ☐ None   of the:

        1. ☐ Certified copies of the priority documents have been received.

        2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

        3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

    * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

    (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

        1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____ .

    (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)

3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application

6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .

7. ☐ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____ .

Francis J. Jaworski
Primary Examiner

<div align="center">

REASONS FOR ALLOWANCE

</div>

The following is an examiner's statement of reasons for allowance:

A. 35USC101 Rejection

This rejection was WITHDRAWN as a result of the pre-appeal conference held on June 13, 2007 insofar as it has been determined as a clarification to the Interim Guidelines regarding subject matter eligibility under 35 USC 101 that ' a practical application in the context of 'useful, concrete and tangible result' can be the result itself and does not require that steps or additional limitations be added to the claim {State Street Bank & Trust v Signature Financial Group, Inc. , 149 F.3 1368, 1373, 47 USPQ 1596, 1601 (Fed. Cir. 1998)}. Therefore the claim need not include the uses to which the result is put.. '

B. Prior Art Allowance Reasoning

'Silverstein and Engeler' (US5117238) is directed to an ultrasound sonar matrix array in which smaller subarray units were desirable for superresolution processing by applying a decimation process in association with sub-band processing, see cols. 1 – 2 bridging, col. 2 lines 44-64 and col. 4 lines 44 – 59, and was cited in later medical imaging ultrasound patents to Engeler, Engeler et al (respective US5477859 and 5832923) embracing matrix array subarray division and multiplexing along with decimation as well as in Wright et al (US5685308 cited by applicant and Exr

and its divisional 5827188 cited by applicant) directed to flexible choice of decimation

rate as well as multiplexing and citing the earlier Engeler et al and so the patents were

considered for what they might teach against the claims' languages now presented.

In **Silverstein and Engeler ('238)** which was adapted to a sonar/radar

environment, col. 1 lines 20 – 35, the decimation rates are confined to a 1:K

downsampling in each channel over an N-sample length for purposes of matrix

processing in parallel for effecting superresolution processing for which multiplexing is

not used.

In **Engeler ('859)** which is directed to reducing channel numbers for 2D array

ultrasound medical imaging receive processing,   (where the different requirements of

ultrasound sonar and ultrasound medical imaging in terms of focal lengths, relative

delays and array size in relation to scanned areas are noted in col. 2), the wideband

transformation into beamspace and inverse transformation are proposed as an

alternative to frequency sub-band divisioning that is implemented by a spatial filter

including

either a process that is an alternative equivalent to filtering and decimation in

order to reduce channel number for later beamformation changes per col. 2 lines 30 –

42 and col. 9 lines 38 - 43 where a standard 40 MHz A/D converter is used,

or in the alternative by a process in which multi-stage decimation and filtering is

used in association with an initial oversampled delta-sigma modulator per col. 9 lines 1 -

37, however in the latter case the decimation is a 1:N fractioning in successive such

stages.

Multiplexing is used both on the output of the transform preprocessors as 6 and, in the repeated firing alternative embodiment of Fig. 18, prior to A/D conversion as well.

In **Engeler et al ('932)** which advances over the '859 patent that forms prior art Figs. 1 – 3, 6 whereas again, multiplexing and decimation are used together, the refinement improvement is directed to switched local bus interconnection of the transducers on the input to the transform processor.

In **Wright et al** (collectively '308) the first R-150 and second R-154 decimator stages follow input multiplexer stage R-108 where,

the first stage R-150 comprising anti-aliasing low-pass and bandpass filters h1 and h2, either or both may be selectively chosen to filter at the decimation rate for the decimator 162 proper, which in turn may decimate at an integer or rational (i.e. ratio of whole numbers) downsampling rate which is programmably selectable as per col. 18 line 54 – col. 20 line 35,

the second stage decimator R-154 comprising anti-aliasing complex filter using coefficients h3 as R-167 and decimator/downsampler proper (R-169) outputs inter alia an interleave of two or four beams

and which are used inter alia for parallel receive beam processing where sub-array summation of their outputs is performed in the baseband multi-beam processor to which they output. In between the two stages is a delay memory R-152 which outputs an interleaved data stream for the two or four beams as a result of addressing of a multi-delay memory with the interleaved output R-159 (termed R-192 in text).

When this cross-referenced technology nexus is considered alone or in combination against the base claims now presented,

a) re Claim 1 - None of the prior art alone or in combination teaches or suggests inter alia a decimation process comprising passing at least two consecutive data samples while removing at least two other consecutive data samples in the context claimed, since in Wright et al '308 the 'rational number' down-sampling ratio may be effected inter alia by leaving out a decimator stage and/or altering the address locations in the delay interleave memory 152 and there is no suggestion to practice decimation in the fashion claimed by applicant;

b) re Claim 6 – whereas the decimator in Wright et al '308 might be omitting more than one sample dependent on the downsampling factor and be characterizable as being in a bandpass mode set by h2 or h3, it does not both remove and pass consecutive data sample sets and the interleaved data stream implementing is determined by addressing multiple delay memory 152 and not by a multiplexer-based compositing, and whereas the Silverstein et al system (insofar as applicant's claim is not recited as limited to medical ultrasound imaging as opposed to ultrasound sonar to which the patent is directed) produces a bandpass or subband mode having parallel decimated data streams for beamforming the result cannot be composited by multiplexing since the exercise is directed to creating smaller pseudo-arrays for superresolution processing;

c) re Claim 12 – whereas In Engeler '859 the multiplexing is performed on input at 26 to the decimation filtering stage of Fig. 15 in the case where decimation is used at

all; the Silverstein et al patent while decimating in a mid-band signal portion does not

use multiplexing, and Wright et al alone or considered together with the former would

not be forming a data stream with consecutive samples assembled as well as

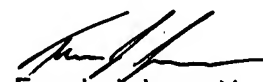consecutive samples set to zero as a form of omission from the data stream;

     d) re Claim 17 – whereas Silverstein et al separate filtered data streams including

a low band, midband and high band and decimate the data, they do not form a

multiplexed data stream from the output since the spectrally compartmentalized streams

must be kept separate in order for their specialized processing to occur.

     Any comments considered necessary by applicant must be submitted no later

than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on

Statement of Reasons for Allowance."

     Any inquiry concerning this communication should be directed to Jaworski

Francis J. at telephone number 571-272-4738.

     FJJ:fjj

     6/14/07

Francis J. Jaworski
Primary Examiner